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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/649,921

08/27/2003

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EXAMINER

SINGH, PREM C

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

06/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/649,921	<b>Applicant(s)</b> NGUYEN ET AL.	
	<b>Examiner</b> PREM C. SINGH	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11, 13, 14, 16-18, 20-27, 29 and 32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 13, 14, 16-18, 20-27, 29 and 32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Amendment to claims 1, 7 9, 13, 14, 22, 25, 27, 29, and 32 and cancellation of claims 10, 12, 15, 19, 28, 30, 31, and 33 is noted.

### ***Allowable Subject Matter***

The indicated allowability of claims, and subject matter, of claims 1, 5-8, 19, 21 and 31 is withdrawn in view of the newly discovered reference(s) to Ohsol (US 5,948,242). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 5-8, 21, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsol (US 5,948,242) in view of Reynolds (US 4,778,589) and Hsu (US 4,415,426). Ohsol teaches a process for upgrading heavy oil comprising adding salt free water to the oil to remove salt and then adding a chelating agent (see Ohsol, col. 4, lines 19-23). The chelating agent may be glycolic acid (which is a hydroxy acid) (see Ohsol, claim 21). The amount of chelating agent added may range between 100 and 2000 ppm (see, col. 4, lines 33-40). Ohsol also teaches that when the chelating agent is used, heavy metals are attracted to the water-soluble chelating agent (see col.4, lines 59-60). Ohsol does not teach that the hydroxy acid is added to the oil via an aqueous solution. Ohsol also fails to teach the use of electrostatic coalescence to promote the separation of the emulsion of Ohsol.

However, Reynolds teaches a process for removal of metals from a hydrocarbon feedstock. The reference teaches mixing the feedstock with an aqueous solution of a metal sequestering agent. (See Reynolds, abstract). Reynolds teaches that the metals

sequestering agent can be a chelating agent. Reynolds further teaches that the pH can be above 2 or between 5 or 9. See col. 2, lines 43-50. The reference teaches that this process is effective for removal of metals such as calcium.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Ohsol by using an aqueous solution as a vehicle to add the glycolic acid to the oil as suggested by the teachings of Reynolds because of the expectation of successfully mixing the chelating agent into the oil. It further would have been obvious to use pH of 2 or 5 to 9 in the Ohsol process.

Also, the use of electrostatic coalescence to promote the separation or resolution of an emulsion is notoriously well known. For example, Hsu teaches that use of electrostatic coalescence to treat an emulsion results in faster coalescence of the emulsion (see abstract). Therefore, it would have been obvious to have used electrostatic coalescence as taught by Hsu to promote the separation or resolution of the emulsion of Ohsol.

2. Claims 2-4, 23, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsol (US 5,948,242) in view of Reynolds (US 4,778,589), Hsu (US 4,415,426) and Crump (US 5,389,594). Ohsol in view of Reynolds and Hsu do not disclose the addition of a mineral acid.

However, Crump discloses that sulfuric acid is used to reduce the pH of a chelant mixture to about 4.2 (see Crump, col. 11, lines 45-66).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process taught in Ohsol in view of Reynolds and Hsu to include the addition of sulfuric acid in order to lower the pH of the mixture to 4.2.

3. Claims 9, 11, 13, 14, 16-18, 20, 27, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crump (US 5,389,594).

4. With respect to claims 9, 11, 13, 14, 16-18, 27, 29 and 32, Crump discloses chelants used in oil drilling that comprise one of citric acid, glyceric acid, gluconic acid, or glycollic acid, such chelants being useful in water. The oil/chelant mixture further comprises sulfuric acid to reduce the pH of the mixture to about 4.2. The amount of chelant in the wash water is about 0.01 to about 40 weight percent and corrosion inhibitors are included in the composition. See Crump, column 1, lines 16-27, column 11, lines 57-65, column 13, lines 22-29 and 57-64, column 14, lines 1-14, column 16, and lines 27-50.

Crump does not specifically disclose that oil is mixed with the water and chelant, etc. However, it would have been obvious to one skilled in the art at the time of the invention would have known that a chelant/water mixture useful in oil drilling would have resulted in a composition comprising oil, water, and chelant.

5. With respect to claim 20, Crump does not disclose that the composition of the treated crude oil contains more than 10 ppm iron or calcium. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the contact time, the amount of chelant added and to choose a crude oil feed having

high metals content in order to achieve a desired amount of metal content in the crude oil product.

***Response to Arguments***

6. Applicant's arguments filed 04/08/2008 have been fully considered but they are now moot in view of the new ground of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is (571) 272-6381. The examiner can normally be reached on 7:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS  
Examiner, Art Unit 1797

/Glenn A Caldarola/  
Acting SPE of Art Unit 1797